



RESEARCH DEPARTMENT

VISIT TO HOLLAND — 25th AND 26th OCTOBER 1955

Report No. A-040

(1956/6)

THE BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION

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SUMMARY

This report records a short visit to the P.T.T. authorities in The Hague made at the conclusion of the oversea field strength measurements of the Band II transmitter installed at Scheveningen Radio.

1. GENERAL.

The primary object of this visit to The Hague was to discuss the results of the oversea experiments with the P.T.T. engineers concerned and to raise the question of possible further work in the future on Band III. The writer was fortunate also in being able to see one of the new towers being erected in Holland for multi-channel microwave links and Band III television, the new P.T.T. Laboratories at Leidschendam and to inspect the field strength measuring apparatus.

2. THE 94.35 Mc/s EXPERIMENTS FROM SCHEVENINGEN.

The results of this experiment, which were then available in draft form (now available as Research Department Report No. K-107) were fully discussed with Heer Verton and Captain J. Houtsmüller and arrangements were made for the temporary continuation of the transmissions for the purpose of "site effect" tests in the neighbourhood of Flamborough Head and Happisburgh. It was agreed that on the completion of our experiments the Yagi aerial at Scheveningen Radio should be re-oriented to radiate along the coast towards The Hook of Holland and that Captain Houtsmüller's propagation group would then make measurements with the object of checking the e.r.p. of these transmissions. (These measurements have since been made and confirm the expected maximum of 3 kW e.r.p.)

Heer Verton said that he was fully prepared to co-operate in future experiments from Scheveningen on Band III.

The initial discussions took place at the P.T.T. buildings on Prinsevinkenspark. At their conclusion Heer Verton suggested that we should visit the site of Scheveningen Radio to see the arrangement of the B.B.C. transmitter and to have a general look at the famous North Sea coast station PCH.

3. VISIT TO SCHEVENINGEN RADIO.

Accompanied by Heer Verton I visited this site and we were most cordially received by the Chief Engineer and staff.

The monitor arrangements of the Band II transmitter were discussed, since it had been found that the monitor output readings recorded in the log sheets had not given very reliable information on the performance of the transmitter. It was revealed that the unreliable working of the monitor was due to stray pick-up from the several radio telephone shore-to-ship transmitters at Scheveningen Radio.

It was of interest to note that the transmitters used for the ship services at Scheveningen varied considerably in design. Some of the "trawler band" transmitters were quite modern and had been built specially for the purpose by the P.T.T. staff, whereas the 500 kc/s I.C.W. transmitters were of very lash-up design, although reliable in working, having been improvised from available apparatus after the War when the Germans had destroyed much of the original gear. It was noted that there would be no difficulty in accommodating, for future experiments, the two units of the Mullard Band III transmitter which would occupy a greater floor area than the existing Band II transmitter.

Scheveningen Radio receives so many English-speaking visitors during the summer holiday period that they have gone to the trouble of preparing a special pictorial brochure printed in English!

4. INSPECTION OF P.T.T. MOBILE FIELD STRENGTH MEASURING APPARATUS WITH PNEUMATIC MAST.

I was able to see the working of this apparatus which had been brought down to the quay at Scheveningen for this purpose. The most interesting feature was the pneumatic mast made by the French firm, Société d'Électricité Mors, which was similar to the type of mast we had on order at the time. The Dutch engineers had devised an interesting method of indicating the height of the mast head at a point inside the vehicle by means of a spring-loaded drum and flexible cable. The same gear could be used to move the recorder chart linearly in step with the height of the mast head, thus permitting height-gain measurements to be made with great ease and quickness. The P.T.T. field strength measuring van was fitted with a portable petrol driven alternator set used for power supplies but I was told that this apparatus is never used attached to the vehicle but is always unshipped and placed on the ground before use. (We are hoping to be able to use a similar alternator set with our vehicle in motion—the Dutch experience rather suggests that this may not be practicable.) Another power supply for the mobile apparatus is obtained from batteries and rotary convertors. It is standard practice to use separate rotary convertors for the receiver and for the signal generator in order to ensure the stability of the latter.

To ensure speedy erection of the pneumatic mast a compressor, fitted under the bonnet of the vehicle, is used in connection with a compressed-air reservoir. Rohde and Schwarz field strength measuring apparatus is used but some of the auxiliary gear is of British manufacture. The general lay-out of the field strength measuring van is very similar to that of our own vehicles.

5. VISIT TO V.H.F. AND MICROWAVE TOWER AT ROOSENDAAL.

During the afternoon of the first day I was able, at Heer Verton's invitation, to inspect one of the new concrete towers which are being erected in Holland for

Band III broadcasting and microwave links. The tower at Roosendaal is approximately 30 miles (48 km) south-east of Rotterdam. It will not radiate on Band III initially but will be the junction point for microwave and television links from Belgium and other parts of Holland.

This tower was still under construction when we saw it but had nearly reached its full height. The photograph (Fig. 1) is of a model of a typical tower of this type which has a total height, without the top mast, of about 250 ft (80 m). The towers are of somewhat unusual construction, consisting of a reinforced concrete cylinder, about 33 ft (10 m) in diameter, standing on concrete piles driven about 60 ft (18.4 m) into the ground, and, by an interesting method of construction, they are built in about three weeks by the continuous pouring of concrete into a mould raised on jacks as the tower height is increased. Building Department may be interested in this type of construction.

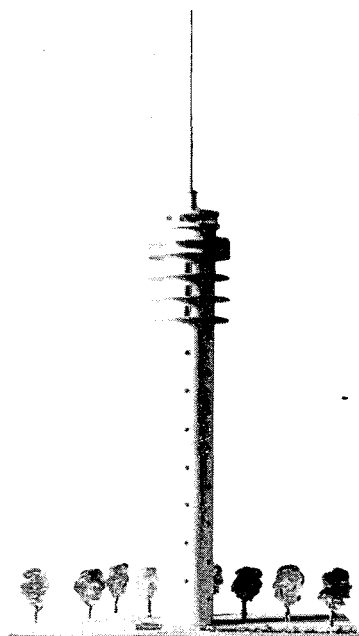


Fig. 1 - Model of concrete tower at Roosendaal

When completed, it is intended that the transmitting gear shall be on one of the top platforms inside the towers with the control gear, etc., on the ground floor. A lift and stairs will be provided. Heer Verton stated that site selection in Holland is extremely difficult owing to the flat country and restrictions due to aircraft.

6. VISIT TO CAPTAIN HOUTSMÜLLER AT THE NEW P.T.T. LABORATORIES AT LEIDSCHENDAM.

This was a most interesting visit during the morning of Wednesday, 26th October, to the new Dutch laboratories (the "Dollis Hill" of Holland) which are now nearly complete. The lay-out and amenities are very good indeed and I was very interested to note that for research work the preferred lay-out of laboratories is a large number of open-topped cubicles inside a long, high building with a gallery running around at first-floor level which contains the administrative and technical offices. This method permits staff to work in small groups uninterrupted by people working on other subjects while, at the same time, the engineer supervising a group can see at a glance what is going on by looking over into the cubicles from the balcony running round the laboratory wall. The lay-out thus has the dual advantage of small segregated groups and quick contact between the Section Head and his staff. It avoids the bad practice sometimes seen in this country of having a large number of staff crammed into big laboratories and offices with resulting inefficiency.

One other feature of the laboratories was a central tower estimated to be about 150 ft (45 m) high which was used for propagation and aerial experiments.

I was received by Dr. H. van Duuren, Head of P.T.T. Research, and by Dr. C.T.H. van der Wyck, Head of Radio Research, and we had a general discussion on technical topics for about half-an-hour.

7. CONCLUSIONS.

This trip to Holland, regrettably restricted in time, was felt to have been most useful in maintaining our present close liaison on experimental matters with the Dutch P.T.T. authorities. It would be of great value if similar visits took place from time to time in the future.